

7-8, and 12 are allowable if rewritten in independent form, including all of qualifications of the base claim and any intervening claims.

Applicant has amended the specification to correct an obvious typographical error, namely, the listing of trp.

### **Rejection of Claims under 35 U.S.C. §102**

Claims 1-3, 6, and 13 were rejected as anticipated by Sitkovsky *et al.*, which, according to the Examiner, teaches a peptide, PLSRTL SVSS or PLRRTL SVAA-NH<sub>2</sub>, that comes within the recitations of claim 1. In particular, the Examiner contends on page 3, paragraph 3, of the Office Action that:

...the three amino acid sequence PLS or PLR would qualify as the first X variable, the R residue (the second R residue in the PLRRTL SVAA sequence) corresponds with the Z residue, and the TLSVSS and TLSVAA read on the second X variable. Both of the peptides reading on the X variable comprise amino acids that are hydrophobic and are at least 50% of the amino acid making up the hydrophobic peptide (amino acids P and L in the PLS or PLR and amino acids T, L, V in the TLSVSS and amino acids T, L, V, A in the TLSVAA).

Applicant respectfully submits, however, that claim 1 encompasses neither of the peptides in question.

As to peptide PLRRTL SVAA-NH<sub>2</sub>, the presumed "X" segment (bolded) contains the amino acid arginine (R), which is a charged amino acid (see specification at page 13, line 22). The specification requires a "hydrophobic peptide sequence...which does not include a charged amino acid" (page 7, lines 12-14; emphasis added). Therefore, because the prior art

peptide PLRRTLSVAA-NH<sub>2</sub> contains the charged amino acid R, it is excluded from the present application's claims.

As to the peptide PLSRTLVS<sup>**SS**</sup>, the presumed X segment, TLSV<sup>**SS**</sup>, is not a hydrophobic peptide sequence. Neither threonine (T) nor serine (S) is a hydrophobic amino acid because both are polar and, hence, hydrophilic due to the presence of an -OH group. See appended excerpt from <http://webhost.bridgew.edu/fgorga/proteins/polar.htm>; accessed on 11/29/02. Additionally, neither threonine (T) nor serine (S) are identified as hydrophobic peptides in the present specification at page 13, lines 20 – 23. Therefore, because the hydrophobic amino acids (not bolded) constitute only 35% the second peptide chain, TLSV<sup>**SS**</sup>, one skilled in the art would not have considered that peptide a “hydrophobic” peptide.

Accordingly, claim 1 does not read on the second Sitkovsky peptide, PLSRTLVS<sup>**SS**</sup>, because TLSV<sup>**SS**</sup> is not a hydrophobic peptide sequence and the X segment of the claimed peptide chain must be a hydrophobic peptide sequence.

Claim 3 is further distinguished over the prior art because fewer than 50% of the amino acids in peptide PLSRTLVS<sup>**SS**</sup> are hydrophobic, contrary to the requirement in claim 3 that “at least 50% of the amino acids are hydrophobic.” Claim 6 also requires that Z aspartic acid (Asp, D) or glutamic acid (Glu, E), while the peptides of Sitkovsky *et al.* have a Z that is arginine (R). Accordingly, both claim 3 and claim 6 are separately patentable over the prior art.

### CONCLUSION

Based on the foregoing, applicant submits that the present application now is in condition for allowance, and a timely indication to this effect is respectfully requested. Examiner Gupta is invited to contact the undersigned directly, should he feel that a telephone interview would advance the prosecution of this application.

If there are any fees due in connection with the filing of this Amendment, please charge the fees to our Deposit Account No. 19-0741. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

Date 29 November 2002 By S. A. Bent

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**MARKED UP VERSION SHOWING CHANGES MADE IN THE SPECIFICATION**

On Page 13, starting at line 20.

As will be readily understood by those skilled in this field hydrophobic amino acids are Ala, Val, Leu, Ile, Pro, Phe, [~~Tyr~~] Trp and Met; positively charged amino acids are Lys, Arg and His; and negatively charged amino acids are Asp and Glu.



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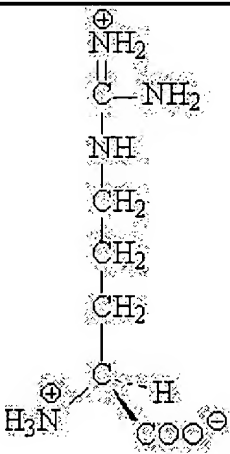

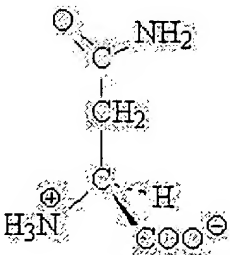

## Polar Amino Acids

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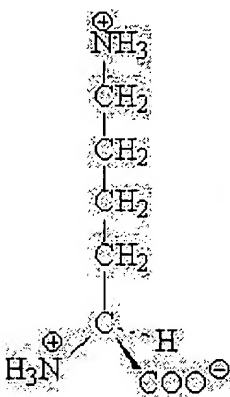
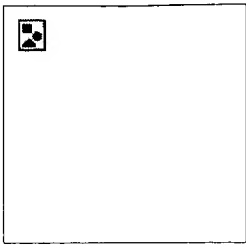
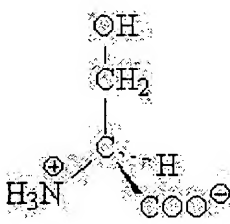
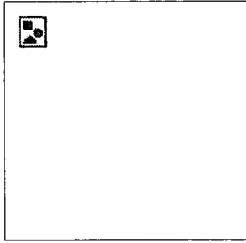
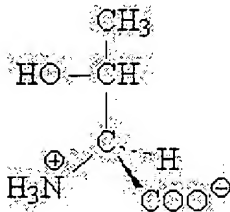
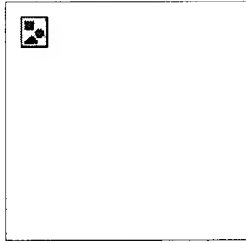
The side chains (R groups) of the amino acids can be divided into two major classes, those with polar side chains (shown here) and those with nonpolar side chains.

The polar amino acids include: arginine, asparagine, aspartic acid (or aspartate), glutamine, glutamic acid (or glutamate), histidine, lysine, serine, and threonine.

Polar side chains contain groups that are either charged at physiological pH or groups that are able to participate in hydrogen bonding. Exam each of the amino acids shown below and determine why it is considered polar.

Name	3 letter code	1 letter code	2-D Structure	3-D Structure
Arginine	Arg	R		<div>  </div> <div> <math>C_{\alpha}</math> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark         </div> <div> <b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill         </div>
Asparagine	Asn	N		<div>  </div> <div> <math>C_{\alpha}</math> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark         </div> <div> <b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill         </div>
Aspartate	Asp	D		

				<p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>
Glutamine	Gln	Q		<p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>
Glutamate	Glu	E		<p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>
Histidine	His	H		<p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>

Lysine	Lys	K		 <p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>
Serine	Ser	S		 <p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>
Threonine	Thr	T		 <p><b>C<sub>α</sub></b> <input type="checkbox"/> - Mark <input type="checkbox"/> - Unmark</p> <p><b>Model</b> <input type="checkbox"/> - Stick <input type="checkbox"/> - Spacefill</p>